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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/911,823	07/25/2001	Jun Kitakado	010901	4866

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WASHINGTON, DC 20006

EXAMINER

TIEU, BENNY QUOC

ART UNIT PAPER NUMBER

2642

DATE MAILED: 09/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/911,823

Applicant(s)

KITAKADO ET AL.

Examiner

Benny Q. Tieu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7/25/01, 8/13/03, 9/23/03, 11/6/03 & 1/6/04
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Raleigh (U.S. Patent No. 6,006,110).

Regarding claims 1, 2, 8 and 9, Raleigh teaches a radio equipment changing antenna directivity on real time basis and transmitting/receiving signals time divisionally to/from a plurality of terminals, comprising:

a plurality of antennas arranged in a discrete manner (Fig. 1); and

a transmission circuit and a reception circuit sharing said plurality of antennas for transmitting/receiving signals (Fig. 2A, #52 and #54); wherein

said reception circuit includes

a reception signal separating unit for separating a signal from a specific terminal among said plurality of terminals, based on signals from said plurality of antennas, when a reception signals is received (column 6, lines 25-41), and

a reception transmission path estimating unit estimating a reception response vector of a propagation path from said specific terminal, based on signals from said plurality of antennas, when said reception signal is received (column 6, lines 41-45);

said transmission circuit includes

transmission propagation path estimating unit estimating a transmission response vector of a transmission path when a transmission signal is transmitted, based on a result of estimation by said reception propagation path estimating unit (Fig. 2A, 64), and

a transmission directivity control unit updating said antenna directivity when said transmission signal is transmitted, based on a result of estimation by said transmission propagation path estimating unit; and said transmission propagation path estimating unit includes an extrapolation processing unit calculating said transmission response vector of a down link slot to said specific terminal, by an extrapolation process based on a plurality of said reception response vectors of up link slots from said specific terminal estimated by said reception propagation path estimating unit (column 6, lines 47-65),

a memory holding a plurality of parameters used for said extrapolation process, determined in advance in accordance with the propagation environment of said propagation path, and a selecting unit estimating the propagation environment of said propagation path, selecting a parameter corresponding to said estimated propagation environment among said held plurality of

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parameters, and applying the selected parameter to extrapolation process by said extrapolation processing unit (column 11, lines 5-15).

Regarding claim 3, Raleigh further teaches the radio equipment wherein said selecting unit selects a shorter extrapolation distance when the estimated Doppler frequency is lower, and selects a longer extrapolation distance when the estimated Doppler frequency is higher (column 9, line s55-62).

Regarding claims 4 and 6, see column 9, lines 1-15.

Regarding claims 5 and 7, Raleigh further teaches the radio equipment wherein said selecting unit selects a shorter extrapolation distance when the estimated signal error is larger, and selects a larger extrapolation distance when the estimated signal error is smaller (column 9, lines 55-62).

Regarding claim 10, Raleigh teaches, in a radio equipment changing antenna directivity on real time basis and transmitting/receiving signals time divisionally to/from with a plurality of terminals, a Doppler frequency estimating circuit estimating Doppler frequency of a propagation path with a specific terminal, comprising:

a reception signal separating unit separating a signal from said specific terminal among said plurality of terminals based on signals received by a plurality of antennas arranged in a discrete manner (column 6, lines 9-24);

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a reception propagation path estimating unit estimating a reception response vector of a propagation path from said specific terminal, based on signals received by said plurality of antennas (column 6, lines 47-65);

a correlation operating unit calculating a vector correlation value based on reception response vectors preceding and succeeding in time estimated by said reception propagation path estimating unit (column 7, lines 1-12); and

an estimating unit estimating a Doppler frequency corresponding to the vector correlation value calculated by said correlation operating unit, based on correspondence between vector correlation values and Doppler frequencies determined in advance experimentally (column 7, lines 26-67).

Regarding claims 11-16, see column 15, line 61 through column 17, line 38.

Regarding claims 17-23, the limitations of the claims are rejected for the same reasons as set forth in the rejection of claims 1-16 above.

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***Conclusion***

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Raleigh et al. (U.S. Patent No. 5,809,422) teach distributed microcellular communications system. Raleigh et al. (U.S. Patent No. 6,075,991) teach wireless base station with near-far gain compensation.

4. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

OR Hand-delivered responses should be brought to:

220 South 20<sup>th</sup> Street

Crystal Plaza Two, Lobby, Room 1B03

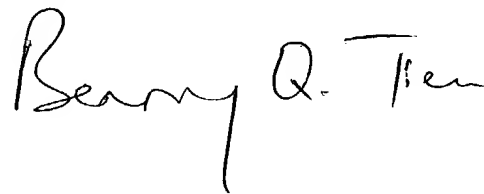
Arlington, VA 22202.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benny Q. Tieu whose telephone number is (703) 305-2360. The examiner can normally be reached on Monday-Friday: 6:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad Matar can be reached on (703) 305-4731. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, reading "Benny Q. Tieu". The signature is fluid and cursive, with the first name "Benny" being more prominent than the last name "Tieu".

**BENNY TIEU**  
**PRIMARY EXAMINER**

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August 26, 2004